


Applicant: Taka-Aki Sato
Serial No.: 09/327,750
Filed: June 7, 1999
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Abstract of the Disclosure:

Please replace the Abstract in the subject application with the Abstract annexed hereto as **Exhibit A**.

In the Specification:

Please delete the paragraph starting on page 1, line 21 to page 2, line 10, and insert the following paragraph:



The low-affinity neurotrophin receptor (p75^{NTR}) can mediate cell survival or cell death by NGF or another neurotrophin stimulation in neuronal cells (1, 2, 3). To elucidate p75^{NTR}-mediated signal transduction, the yeast two-hybrid system was employed to screen the mouse embryo cDNA libraries using the rat p75^{NTR}ICD (intracellular domain) as a target. One positive clone was identified and termed NADE (p75^{NTR}-associated cell death executor). This isolated mouse NADE has a significant homology to human HGR74 protein (4) and does not have a typical biochemical motif except the consensus sequences of nuclear export signal (NES) (5) and ubiquitination (6). Expression of NADE mRNA was found highest in the brain, heart, and lung. NADE specifically binds to p75^{NTR}ICD both *in vitro* and *in vivo*. Co-expression of NADE together with p75^{NTR} dramatically induced Caspase-2 and Caspase-3 activities to cleave PARP (poly (ADP-ribose) polymerase) and fragmentation of nuclear DNA in 293T cells, but NADE without p75^{NTR} did not show apoptosis suggesting that NADE expression is necessary for p75^{NTR} mediated apoptosis but is not sufficient to trigger apoptosis. Moreover, NGF dependent recruitment of NADE to p75^{NTR}ICD was observed in a dose dependent manner and NADE

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significantly inhibits NF-kB activation. Interestingly, NADE protein is found to be ubiquitinated as a substrate for protein degradation pathway. Taken together, NADE is the first signal adaptor molecule identified in involvement of p75^{NTR}-mediated apoptosis, and it may play an important role in the pathogenesis of neurogenetic diseases.

Please delete the paragraph starting on page 53, line 20 to line 33, and insert the following paragraph:

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Mouse NADE consists of 124 amino acids and its molecular weight is calculated to 14,532 dalton. NADE is a hydrophilic and acidic protein, and the estimated pI value is 5.97. A BLAST search revealed that mouse NADE has a significant homology to a known human protein HGR74 (4) (Fig. 1a), and does not have a significant motif except the leucine rich nuclear export signal (NES) (5) (Fig. 1b) and ubiquitination sequences (6) (Fig. 1c). HGR74 was previously reported as an abundant mRNA expressed in human ovarian granulosa cells, however, its functional role is still unknown. The homology of these two proteins except the asparagine rich stretch (a. a. 36-48) of mouse NADE is 92.8%, therefore we conclude that HGR74 is a human homolog of mouse NADE.

In the Claims:

Please amend claims 134-136 and 141-143 as follows:

134. (Amended) A method for determining whether an agent decreases apoptosis comprising:

(a) contacting the agent with a NADE protein

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